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PLANT AND EQUIPMENT SPENDING IN JAPAN

Summary

Japanese consumers and firms unintentionally have played the role of a remarkable duo in postwar Japan. Consumers saved, and firms invested in new plant and equipment. Over time both have benefited as the results of that investment have led to rising business profits and higher standards of living. During the early 1970s Japanese companies and consumers appeared a bit estranged; consumers kept saving almost the same percentage of their incomes, while by some measures firms reduced their rate of investment spending. Foreigners, including Americans, got caught up in the relationship as the surplus savings increasingly flowed out of Japan. Changes in Japanese government policy added more complexity as the public sector's net demand on the capital market changed over time.

But recent years may have seen a rapprochement between consumers and firms, with businesses increasing their plant and equipment spending at a rapid rate. To what extent can this reconciliation be expected to last? Or was there really an estrangement in the first place? This report provides some answers, focusing on capital spending by manufacturing and nonmanufacturing firms. Business investment has been remarkably healthy in recent years, contributing both a needed boost to aggregate demand and facilitating the shifts in industrial structure required as a consequence of the yen's appreciation. While a number of scenarios is possible, in coming years this spending growth is likely to decelerate compared to recent trends but with few negative consequences for the Japanese economy.

Plant and Equipment Spending as an Engine of Growth

For at least 200 years economists have understood that by putting aside a portion of current production the output of future periods could be increased. If, for example, a society collectively produced a tractor rather than a larger amount of food, the machine could be used in future periods to produce more food than would otherwise be possible. This example also shows the close relationship between savings and investment; savings can be thought of as the excess of income over consumption. Since the proceeds from selling a good or a service end up going as income to someone (to investors as the return on committed funds, to the government as taxes, to workers as wages or to producers of the intermediate goods), the excess of production over collective consumption becomes investment to the exact extent that wage earners and others save rather than consume their income.

How the investment gets used is critical, of course. If the government invests in a battleship that gets destroyed in war, the future productive capacity of the economy gets no boost at all. If the excess of production over consumption ends up in involuntary additions to inventories, businessmen may cut production in future periods to adjust to actual levels of demand, pulling the economy down rather than up. Firms may invest in new machinery or even whole new factories that prove inefficient or unneeded, resulting in eventual abandonment. Investment overseas results in a claim on a portion of future production in foreign countries but does not add significantly to productive capacity at home. In all these cases, if the investment is a good one, the benefits go on for years. A well-built home can provide shelter and pleasure to its users for many decades. Public investment in roads and other facilities made in the time of the Roman Empire still are in use and providing benefits.

Many kinds of activity commonly labeled investment are not really investment in the sense that they make a claim on savings. A corporate raider "investing" in a company is not acting in a way that diverts production away from current consumption; he is not having plant and equipment built. In this sense, his action has less significance -- for good or bad -- than investment in a new factory or battleship, which does use real resources regardless of whether the result is needed. The raider merely is buying existing assets, much like an individual buys an existing home.

These examples suggest that all kinds of capital spending, whether public or private, may be productive. Nor does any sector have a monopoly on wasteful investment. But economists usually focus on business plant and equipment spending as having the closest link with future benefits, in part because those benefits can be measured directly in the form of increased future production that gets sold through markets.

Causes of Plant and Equipment Investment

Firms will invest in plant and equipment if it adds to their profits. Behind this simple statement are a host of considerations that make the decision an unusually complicated one.

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• What is the market for the product that the plant and equipment will produce? This involves looking at both the expected price of the product and the likely quantity of demand. For example, if an automaker builds a new factory, will the firm be able to sell the cars made at the new plant and, if so, at what price? Obviously, knowing existing levels of demand is not enough. Businesses need to know whether the product will sell once the plant and equipment come on-line. That can be months or even years away.

• What will the new plant and equipment cost? This has two dimensions. First, what is the interest rate, explicit if the company is borrowing the money, and implicit if it is using internal funds? Obviously, low rates of interest permit more potential projects to pass the profitability test. This interest rate criterion, however, is more complex than it seems. Inflation is one of many complications that could be considered. If inflation is anticipated, for example, the price of the goods produced, the resale price of the equipment and every other associated price and cost will be scaled up accordingly. Any nominal interest rate will be much less burdensome. Just the opposite has been true in Japan during the 1980s: extremely low rates of inflation have had the effect of keeping real interest rates relatively high and sometimes steeper than nominal rates. U.S. businessmen who salivate at the low nominal interest rates in Japan tend to forget this.

Second, what will the plant or equipment itself cost? If a bank is thinking of installing a computer to process financial transactions, the price of the computer is an important consideration. This factor, which analysts often have overlooked, can be critical. In Japan the cost of investment goods generally has been declining relative to other goods during the 1980s; this has made many more investment projects worthwhile.

• Does the company have adequate plant and equipment already? Obviously, if a firm has the appropriate capacity already in place, even low interest rates, favorable conditions for the product to be sold, and attractive prices for capital goods should not compel the plunge to buy new equipment. But determining appropriate capacity can be complicated. Changed conditions in the market may dictate new thinking about what is needed. Japanese carmakers, for example, invested heavily in 1988 in distribution facilities in Japan to meet the increase in domestic demand. This investment would have been necessary regardless of the extent of production capacity in Japan or elsewhere.

Conversely, worn-out or obsolete equipment can lead to a decision to increase investment spending, even in the absence of the other factors behind capital spending. In this case the firm may respond like the reluctant car buyer who eventually concedes that his or her clunker needs replacing immediately regardless of high prices or climbing interest costs.

These factors suggest that plant and equipment investment often will be subject to what is called a stock-adjustment process. Faced with a sudden shift in costs or demand, companies may boost funding for a whole series of projects that suddenly make economic sense. Similarly, a once-and-for-all surge in aggregate demand may lift overall investment spending dramatically, but temporarily, to expand capacity. In both cases, however, plant and equipment spending subsequently may fall rapidly even if low costs or high demand remain, simply because the list of attractive projects gets exhausted.

Effects of Plant and Equipment Investment

Once a firm does invest in plant and equipment, all kinds of effects are set in motion, some lasting only an instant, others persisting for years.

- The economy gets a boost. Workers are hired to build the machines, construct the buildings or whatever. With plant and equipment spending averaging about 20 percent of Japan's gross national product, the direct effect of an increase in business investment is substantial. A 10 percent boost, for example, could lead to about a 2 percent rise in GNP. If there had been a shortage of labor or materials, inflationary pressures could rise as the new activity spurs competition for resources with existing activities, reducing the gain in GNP. However, if unemployment is very high, this problem may not arise.

- A secondary boost to the economy occurs as the beneficiaries of the increased investment spend their incomes, with the same possible further consequences for inflation.

- The capacity of the economy will grow in the long run as plant and equipment come on-line. This has been one cause of the extraordinarily high growth of labor productivity in Japan compared to the United States. While U.S. labor productivity grew about 1 percent per year between 1978 and 1987, Japanese labor productivity, which is measured by a slightly different -- although not necessarily more optimistic -- yardstick, leaped ahead 3.1 percent a year.

- The technological level of the economy may rise depending on the nature of the investment. A semiconductor manufacturer, for example, may build a plant capable of producing a new type of computer chip that it could not have made in its older factories. An automobile manufacturer may install robots in a new plant that permits the production of cars in a different way than in existing plants.

Although technological progress and new plant and equipment often go together, they do not always. New production techniques can be introduced into existing plants. Likewise, new equipment may use the same technology as existing equipment. Or if the technology is new, it may be misused. General Motors Corp., for example, has been accused of showering money on new plants with state-of-the-art technology without fully understanding how to use it.

- The long-run effect of plant and equipment spending on employment is ambiguous once the employment-generating effects of the investment itself are exhausted. If aggregate demand remains high, economy-wide unemployment need not rise, but some workers may have more difficulty finding worthwhile employment if the investment eliminates their jobs. This implies that employment opportunities for some workers are likely to be enhanced as a result of the capital spending.

Plant and Equipment Investment in Japan: A Historical Overview

Postwar Japan has a reputation for remarkable rates of savings and, in parallel, high rates of investment. However, such has not always been the case. Clearly, investment has played a major role in Japan's postwar economy (see Table 1). Increased plant and equipment spending along with investment by the government in new infrastructure have helped boost the productivity of

Japanese workers and, at least in the long run, Japanese wages and the standard of living.

Table 1: Historical Trends in Gross Domestic Investment, 1930-86

(percent of gross national product or gross domestic product)

	Series A*	Series B**	Plant and Equipment**
1930-34	13.0%		
1935-39	18.3		
1940-44	18.0		
1946-49	13.2		
1950-54	24.6		
1955-59	29.3		
1960-64	38.4		
1965-69	35.7	33.8%	
1970-74	38.7	37.5	18.7%
1975-79		31.5	14.8
1980-84		30.0	15.3
1985-86		28.3	16.2

*Percent of GNP.
**Percent of GDP.

Note: The data in the first two columns refer to total investment, including that in the public sector and inventory investment by the private sector as well as the plant and equipment investment shown in the third column.

Sources: Kazuo Sato, "Saving and Investment" in Kozo Yamamura and Yasukichi Yasuba (eds.), The Political Economy of Japan Volume I: The Domestic Transformation (Stanford: Stanford University Press, 1987), p. 138 and the sources cited therein. For plant and equipment data and 1980-86 data, Economic Planning Agency.

During the mid-1980s a number of analysts noted a trend very apparent in the second column of Table 1. Investment appeared to be in a steady if slow long-term decline as a proportion of gross domestic product. (Gross domestic product omits from gross national product net labor and other earnings from abroad. As such it is the more appropriate base against which to measure investment.) A continuation of this trend would have had implications of particular importance to Americans. Coupled with a still high rate of savings and a gradual reduction of the government deficit, it would have created pressure for an ever bigger current account surplus as increasingly surplus Japanese savings turned to alternative investment outlets abroad.

To the extent that investment spurs growth, the apparent downturn in capital spending suggested that Japanese growth rates, already slowing, were likely to remain low or even drop further without the stimulus to both aggregate demand and supply provided by additional investment. In at least one

respect, however, this conclusion has to be qualified. Business plant and equipment spending (column 3 of Table 1), arguably the most potent type of investment for generating economic growth, has not declined relative to GDP as much as gross domestic investment in general (column 2).

In one other important respect, moreover, the slide in investment through at least 1986 is not everything it appears. If investment goods become cheaper relative to the prices of other goods, percentages based on nominal GDP give a misleading picture of sluggishness compared to the rest of the economy. This point was emphasized by the congressional Joint Economic Committee in its 1988 report on the Japanese economy.[1]

Table 2 shows the importance of relative prices in discussing the trend in business investment. The first column, where yen-denominated gross national product is divided by the yen value of plant and equipment spending, shows that despite some ups and downs due to the business cycle capital spending generally has been less of a burden for the Japanese economy, at least until recently. As a consequence, more savings could be made available for investment abroad, other factors, such as the Japanese government budget deficit, being equal.

Table 2: Real Versus Nominal Plant and Equipment Spending, 1970-88

	Nominal Plant and Equipment Spending/GNP	Real Plant and Equipment Spending/GNP*	Change in Relative Price of Plant and Equipment**
1970	21.1%	18.8%	-5.5%
1971	19.1	17.6	-3.4
1972	17.5	16.6	-2.8
1973	18.5	17.7	-1.0
1974	18.4	17.0	4.4
1975	16.4	15.6	-3.4
1976	15.2	14.9	-3.0
1977	14.2	14.3	-2.9
1978	13.7	14.3	-3.4
1979	14.8	15.2	2.2
1980	15.7	15.7	2.1
1981	15.5	15.9	-2.8
1982	15.1	15.8	-1.8
1983	14.8	15.8	-1.8
1984	15.4	16.7	-1.8
1985	16.2	18.0	-1.8
1986	16.1	18.5	-4.2
1987	16.2	19.2	-2.5
1988(p)	17.4	21.0	-2.1

*1980 prices for plant and investment and GNP.
**Plant and equipment deflator minus GNP deflator.

Source: Economic Planning Agency

[1]U.S. Congress, Joint Economic Committee, "Restoring International Balance: Japan's Trade and Investment Patterns," July 1988, pp. 15-18.

The second and third columns show what happens when plant and equipment and GNP deflators are applied to nominal capital spending and GNP, respectively. With few exceptions the relative price of investment goods, as measured by the difference in the plant and equipment deflator minus the overall GNP deflator, has fallen. This shows up in Table 2 as a series of negative entries in column 3. Taking the effect of price changes out of the ratio between plant and equipment spending and GNP (the second column) reveals that a virtually unchanging percentage of output has gone to produce investment goods. Indeed, the preliminary 1988 GNP figures suggest real investment as a percentage of real GNP hit a record last year among the periods covered by the table.

The figures in Table 2 have important implications. They suggest that the cost of obtaining new plant and equipment has been falling relative to other activities, thereby helping to prop up capital spending. In addition, the table helps to explain changes in Japan's current account. As investment demands on savings have fallen, savings may have sought outlets abroad. However, plant and equipment investment in real terms has continued to grow along with GNP, suggesting steadily expanding productive capacity. This, in turn, has led to still more GNP growth and, along with it, more savings and capital flows overseas. Another way to see this last point is that as the output of goods and services has grown only a portion of the increase has been consumed at home; the difference has been exported.

As noted earlier, aggregate demand is a powerful factor influencing plant and equipment investment. During the early postwar recovery years, capital found profitable use in expanding the output of goods and services. As the growth in aggregate demand slowed, the demand for new plant and equipment might have been expected to slow as well, other factors being equal. Yet plant and equipment spending did not fall off significantly. To see why, one more concept is necessary: the productivity of the investment itself. Economists of various political philosophies have agreed over the years that, as economies mature, additions to capital return less and less output. In part this is because the most profitable investment opportunities are the first to be taken; in subsequent years only the less attractive options remain.

Kazuo Sato of Rutgers University, in studying this question, in effect has divided the postwar Japanese economy into two periods. In the first one, which lasted from the 1950s to about 1970, firms faced a capital shortage and capital rationing, leading them to use capital as efficiently as possible. By the early 1970s the problem was a labor, not a capital, shortage. The emphasis then shifted to labor-saving expenditures, even if they meant less efficient use of capital. In Professor Sato's view, after this adjustment was completed by 1975, the capital-output ratio stabilized at a higher level.[2]

Using the same framework, Professor Sato argues that the capital-output ratio in Japan should fall in future years. He reasons that with the increasing importance of tertiary activities, which use less capital, the production of goods and services will outpace the relatively slow growth of capital spending. This change will occur in the context of slower overall economic growth, he says.[3]

[2]Kazuo Sato, "Saving and Investment" in Kozo Yamamura and Yasukichi Yasuba (eds.), The Political Economy of Japan Volume I: The Domestic Transformation, (Stanford: Stanford University Press, 1987), pp. 165-68.

[3]Ibid., p. 183.

The growth in the past two years casts some doubt on this prediction, at least over the medium term. As noted, the investment/GNP ratio reached a very high level in 1988. Furthermore, the growth of capital spending has been faster than that of output, raising the possibility that the capital-output ratio has risen, even though the tertiary sector has continued to grow relatively rapidly. Some believe that the Japanese economy has entered yet another new era that began shortly after the yen began appreciating in 1985. The factors influencing investment, and the likely productivity of investment, may be different than they were just a few years ago.

Plant and Investment Spending Since 1985

The upward spiral of the yen that began in 1985 convinced many analysts that the Japanese economy would go into a tailspin. Even relatively optimistic experts thought that growth probably would be more sluggish than in the years immediately preceding 1985, which in turn were characterized by a slowdown from earlier periods.

The last two years have proven virtually all these experts wrong. After dipping to 2.5 percent in 1986, the growth of real GNP recovered to 4.5 percent in 1987 and hit 5.7 percent in 1988. This expansion has occurred in the face of declining real demand for exports net of imports in all three years. Clearly, Japan's economy has undergone fairly rapid structural change, with export- and import-competing sectors losing ground -- and employees and investment funds -- to those industries producing goods for the domestic market and not facing foreign competition. Within export industries firms have scrambled to reposition themselves to produce for the domestic rather than the foreign market.

All this activity appears to have made companies willing to loosen the purse strings when it comes to plant and equipment spending, which has grown in real terms more than twice as fast as GNP in recent years (see Table 3). As shown in column 3, plant and equipment spending has been an important element in the expansion of aggregate demand, explaining a substantial portion of overall GNP growth.

Table 3: Private Plant and Equipment Spending and GNP, 1984-88

	Real GNP Growth	Real Plant and Equipment Growth	Contribution to GNP (percentage points)
1984	5.1%	11.5%	1.8
1985	4.9	12.7	2.1
1986	2.5	5.8	1.0
1987	4.5	8.0	1.5
1988 (p)	5.7	15.9	3.1

Source: Economic Planning Agency

Bank of Japan surveys show the varied purposes of investment by large manufacturing firms. The surveys seek to determine what motivates large companies to invest by asking them to allocate their plant and equipment spending into one of several categories. Among the results:

• A desire to invest in new capacity consistently leads the list, although it has declined in importance very slightly in recent years and accounts for far less than half of all plant and equipment spending decisions. From FY 1985 to FY 1988 the figure went from just over 30 percent to just under. The respondents predicted in February 1989 that in FY 1989 additional capacity would account for 30.6 percent of capital spending.

• In addition, firms say they are eager to "rationalize." This factor has accounted for about 20 percent of plant and equipment spending in recent years. Rationalize usually is taken to mean that companies want to cut costs in response to the greater difficulty they now have in competing in overseas or domestic markets. However, this factor has not risen in importance, although by all accounts competition has increased in recent years.

• The importance of research and development investment and new product development has increased steadily, rising from about 15 percent of the total in the early 1980s to an expected 24.1 percent in FY 1989.

• Energy savings and other factors are expected to account for 25 percent of all plant and equipment spending in FY 1989, down from 27 percent in FY 1988.

Even at relatively high levels, however, corporate fixed investment in manufacturing does not necessarily lead to corresponding increases in productive capacity. The index of production capacity for manufacturing firms verifies this assertion. It grew only 5.8 percent between 1982 and 1985 and 3.5 percent between 1985 and 1988 despite high levels of plant and equipment spending, especially in the latter period. The most recent data indicate, however, that capacity expansion might be accelerating. The index grew 1.3 percent in the year between January 1988 and January 1989.

The rapid growth in capacity would meet a rising need. Seasonally adjusted operating indexes for manufacturing plants have climbed steadily since hitting bottom at 91.5 (1985=100) in November 1986, reaching 104.4 in January 1989. By adding new capacity -- with possible labor savings built in -- firms may be in a better position to cope with continually tightening labor markets.

Explaining the Recent Spurt

Something has happened to plant and equipment spending in the past two years. Growth in 1988 was a remarkable inflation-adjusted 5.9 percent, lifting it substantially as a percentage of GNP. What accounts for this growth? Generally, there has been a confluence of forces identified earlier.

• Investment has responded with vigor to both income and price effects. Increased aggregate demand has led to a more-than-proportional expansion in plant and equipment spending. In addition, the drop in relative prices of plant and equipment goods has continued over the past several years, making increased spending look comparatively cheap.

• Structural shifts in the economy arising out of the yen's appreciation have created new investment needs. In many cases domestically oriented plant and equipment has replaced rather than supplemented foreign demand-oriented facilities. This partly explains why capacity expansion has not been greater.

• Nominal interest rates have dropped to a low level in response to the Bank of Japan's expansionary monetary policy. Particularly for companies that believed the expansionary policy would lead eventually to higher inflation rates, the opportunity seemed ripe to invest and, if possible, lock in the low rates before nominal rates climbed along with rising price levels. Put differently, from the firms' perspective, BOJ's policy led to a temporary drop in expected real interest rates that was even greater than the drop in nominal interest rates.

• Japan's firms have moved to replace plant and equipment, which at least until recently had been aging. According to calculations by the Economic Planning Agency, between 1974 and 1986 the average age of the capital stock of corporations in all industries increased every year, reaching 7.72 years on average in 1986, an increase from 6.3 years in 1973. In 1987, however, the average age decreased slightly for the first time since before the initial oil shock of 1973-74.[4]

Future Plant and Equipment Spending

Surveying capital spending in Japan is a popular endeavor. At least three government agencies, several banks and the daily Nihon Keizai Shimbun make surveys of investment plans by industry, usually updating the surveys several times a year. They generally confine their coverage to relatively large firms. Nihon Keizai Shimbun, for example, surveys firms accounting for about one-quarter of total investment. Table 4 contains summaries of some of the recent surveys and shows varying results for both past spending patterns and expected future spending, a difference that probably reflects the fact that some surveys sample more firms than others.

Table 4: Surveys of Plant and Equipment Spending

	Most recent survey	Number of firms	FY 1986 (actual)	FY 1987 (actual)	FY 1988 (estimated)	FY 1989 (forecast)
Bank of Japan	2/89	648	-0.9%	1.7%	17.9%	6.0%
Nihon Keizai Shimbun	2/89	1,346	-0.7	1.1	14.9	6.8
Japan Development Bank	2/89	2,351	3.1	4.4	18.8	6.4
Economic Planning Agency	12/88	4,082	1.8	7.8	22.8	n.a.
Nominal Plant and Equipment*	n.a.	n.a.	1.5	7.2	13.3	8.4

*GNP basis. The FY 1988 and FY 1989 figures are based on the government's economic outlook for FY 1989, which was announced in January 1989.

[4]Economic Planning Agency, Keizai Hakusho (1988 Economic White Paper) (Tokyo: Okura-sho Insatsu-kyoku, 1988), pp. 316 and 543.

More comprehensive surveys, such as those conducted by the Economic Planning Agency, assign more weight to the intentions of relatively small firms and therefore generally come closer to the actual GNP figures for nominal plant and equipment spending shown on the last line of Table 4. All the surveys tend to agree, however, that plant and equipment spending will grow more slowly in FY 1989 than in FY 1988, although it will remain healthy.

In FY 1988 firms continually upgraded their investment plans. For example, in February 1988 the firms responding to the BOJ survey said they planned to hike spending 3.6 percent in FY 1988 over FY 1987. But in May they boosted this figure to 10.5 percent, in August 14.3 percent and in November 18.1 percent. As the fiscal year was drawing to a close in February 1989, they estimated the increase over FY 1987 at 17.9 percent.

For all their differences the surveys show a similar pattern of changing investment by industry. In FY 1986, as manufacturing firms reeled under the impact of the strong yen, they cut their capital spending on average from FY 1985 levels. Nonmanufacturing firms, in contrast, eked out a small gain. In FY 1988 manufacturers increased spending more than nonmanufacturers and by enough to lift spending well above FY 1985 levels.

Figures from the EPA survey tell the story as well as any. In FY 1986 total investment was up 1.8 percent, but 5.6 percent lower in manufacturing and 7.5 percent higher in nonmanufacturing. Export-oriented industries were the hardest hit; capital spending in the precision instruments industry, for example, dropped 8.7 percent. In FY 1987 the pattern persisted: as economic growth picked up, manufacturing companies continued to hesitate, trimming their plant and equipment spending another 1.3 percent below the depressed levels of FY 1986. Nonmanufacturing businesses, by contrast, increased their spending again, this time by 13.9 percent. In FY 1988 manufacturing firms finally came roaring back, with plant and equipment spending expected to be up a whopping 28.9 percent, although equipment in nonmanufacturing continued to be very strong, with an expected 19.2 percent increase.

A rerun of FY 1988 is expected in the new fiscal year in terms of manufacturing and nonmanufacturing investment. Capital outlays in manufacturing are expected to grow more rapidly than in nonmanufacturing in every one of the surveys summarized in Table 4. For example, in the BOJ's FY 1988 survey, manufacturing plant and equipment spending outpaced that in nonmanufacturing, growing an estimated 28.6 percent against 8.6 percent. In FY 1989 the pattern will be the same: manufacturing investment is tabbed to grow 8.1 percent, nonmanufacturing 2.9 percent.

Table 5 shows the results broken down by industry for Nihon Keizai Shimbun's February 1989 survey. Excluding the largest industry in manufacturing, electric machinery, and the biggest in nonmanufacturing, electric power, reduces the year-to-year variation in rates of growth. Together, these two giant industries account for more than one-third of total spending in the Nihon Keizai Shimbun surveys and somewhat less in more comprehensive surveys.

In short, the surveys reveal a pattern of structural change strongly influenced by the value of the yen in international currency markets. The initial reaction of manufacturers, those most adversely affected by the rise in the Japanese currency that began in FY 1985, was to cut capital spending. By contrast, those industries feeling less negative impact saw an opportunity to

Table 5: Plant and Equipment Spending by Industry, FY 1988 and FY 1989

(percent change compared to previous year)

	FY 1988 (estimated)	FY 1989 (projected)	FY 1989 Share of Total Plant and Equipment Spending
All Manufacturing Firms	28.6%	13.3%	49.1%
Excluding Electric Machinery	25.3	21.9	36.9
Food	50.6	25.9	4.6
Textiles	29.5	3.5	1.7
Paper and Pulp	27.2	10.4	2.3
Chemicals	10.8	21.4	5.5
Pharmaceuticals	11.4	17.1	1.1
Petroleum	0.3	32.4	1.2
Rubber	28.5	15.4	0.7
Glass and Stone	41.8	14.0	1.7
Steel	8.7	15.8	3.9
Nonferrous Metals	41.7	9.0	2.0
Nonelectric Machinery	37.9	16.5	2.0
Electric Machinery	38.6	8.9	12.2
Ships	17.2	1.7	0.7
Motor Vehicles	24.4	11.2	6.8
Other Transport Equipment	21.1	7.0	0.2
Precision Instruments	58.1	1.9	1.1
Other Manufacturing	34.5	9.5	1.4
All Nonmanufacturing Firms	5.2	1.2	50.9
Excluding Electric Power	19.8	10.0	29.4
Fisheries	-60.6	35.7	0.0+
Mining	-21.6	5.4	0.2
Construction	10.9	6.4	2.4
Trading Companies	18.4	0.1	1.0
Retailing	38.6	21.2	2.9
Real Estate	5.7	10.3	2.7
Railroads and Buses	25.9	5.8	3.4
Other Land Transportation	28.8	12.8	0.9
Sea Transportation	8.7	-21.5	0.5
Air Transportation	-0.9	11.2	0.9
Warehousing	49.8	25.1	0.5
Communications	-4.0	-0.9	11.1
Electric Power	1.5	-3.5	21.5
Gas	19.0	5.6	1.7
Services	31.5	16.8	1.2
Total	14.9	6.8	100.0

Source: Nihon Ke'zai Shimbun

profit from the higher real purchasing power being put in Japanese consumers' hands and increased their spending. Eventually this benefit of the strong yen spread even to the more export-oriented manufacturers, which now are raising investment spending rapidly.

Outlook

The surveys clearly point to continued strength in plant and equipment spending. If they are right, fixed business investment will remain a linchpin of economic growth, even if the only result is to boost aggregate demand. Forecasters also expect consumer spending to be healthy, rising faster than the growth of GNP (see JEI Report No. 9A, March 3, 1989). If both the investment and the consumer spending forecasts are correct, the economy will continue to grow rapidly and in balanced fashion: the increased plant and equipment spending will add capacity just when needed to meet expanding consumer demand. As an added benefit, the new capacity will be different than the older capacity, designed to meet the needs of the domestic as opposed to the foreign market. Furthermore, business investment again might play the role it did in the 1970s, helping offset an incipient labor shortage, thus reducing inflationary pressures.

The problem for the economy is that the balance between capital spending and aggregate demand is increasingly precarious and may tip either way depending on several factors. Plant and equipment spending can be a dangerous means of sustaining an economic expansion. Should consumer spending not materialize in the expected way -- and the evidence from the last three months of 1988 and the first two of this year is not encouraging -- then some of the new plant and equipment could prove unnecessary. Should this happen, future spending plans could be revised sharply downward. This, in turn, would have two consequences. First, with plant and equipment spending now representing close to 20 percent of GNP, the deflationary impact on the economy would snowball, reducing still further consumer demand relative to expectations. Second, the resulting downward pressure on real interest rates would weaken the yen and reinforce the temptation of Japanese firms to sell their products abroad. This, of course, could lead to a larger trade surplus, the very opposite of what policymakers in Tokyo and Washington have been trying to accomplish.

Factors identified earlier increase the likelihood of this scenario. Just as investment has grown in accelerated fashion in response to the economy's growth since 1987, it could decelerate as rapidly. Furthermore, the influence of low interest rates, which have been another positive cyclical factor, may be about over, suggesting a decline in investment spending, other factors being equal. Adding to the slowdown would be the concurrent reversal of long-term factors, such as the need to replace an aging capital stock, which has been yet another positive influence in recent years.

However, the investment supply-aggregate demand balance may tip completely the other way. If plant and equipment spending soars above the optimistic levels now expected and consumer demand simultaneously strengthens, the economy could develop extraordinary levels of aggregate demand that the new plant and equipment spending may not alleviate, either because it would come onstream too late or because it would be designed for other purposes, such as expanded research and development needs. In this case, the Bank of Japan's nightmare, inflation, could come to the forefront. Of course, BOJ has been

warning of this scenario for the better part of a year and the dreaded price increases have yet to surface in a significant way.

Some combinations of these extreme cases would be benign for the Japanese economy. Even if consumer spending fails to ignite, continued strong investment spending could pick up the demand slack. If capacity growth is modest, then all that might happen is a return to normal operating rates in Japanese manufacturing, which have been at high levels. This "soft landing" scenario is the most likely. If it materializes, the Japanese economy will emerge with a strengthened research and development capacity, substantially more modern facilities and little problem of serious inflation. Although this scenario is consistent with some intermediate-term reduction in the trade surplus, over the long term Japan's surplus would rise. Within several years, an increasingly competitive Japanese economy would result, and the capital that eventually would be freed up for overseas investment would work to make Japanese financial firms -- in addition to exporters -- an even more imposing presence in foreign markets.

For further information, contact Douglas Ostrom.

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The views expressed in this report are those of the author and do not necessarily represent those of the Japan Economic Institute.